

BETGER, YE. K.

"New Data on the Collection "Turkestanskiy Sbornik"  
Izv. AN U.S.S.R., No 3, 123-125, 1953

"Turkestanskiy Sbornik" represents a symposium of monographs and articles relating to Central Asia in general and to Turkestanskiy Kray in particular. It is a unique collection of printed material clippings from gazettes, journals, and books on prerevolutionary Turkestan; it totals 594 volumes, of which 416 volumes gathered V. I. Mezhev cover the years 1867-1887 and the remaining volumes were prepared in 1907-1916 and 1939. However, this collection cannot pretend to be complete. (RZhGeol, No 3, 1954)

SO: W-31187, 8 Mar 55

BETHER, Georg Dr.

Practical manual for determination of chemical composition of  
water. Bibl.Hig.inst.Srbije no.3:1-81 '53.

(WATER,

determ. of chem.composition, practical manual (Ser))

(CHEMICAL ANALYSIS

of water, practical manual (Ser))

BETHGE-~~HWAN~~KA, Jolanta

Pulmonary thromboembolism according to the autopsy material of the Institute of Pathological Anatomy of the Silesian Academy of Medicine in Zabrze. Pat. Pol. 15 no.4:527-533 9-9 '64

1. Z Zakładu Anatomii Patologicznej Śląskiej Akademii Medycznej w Zabrzu (Kierownik: prof. dr. med. W. Niepolomski).

BETHKE, B.

✓ On the action of promoters chemically related to the carrier. Alfons Krause, Benon Bethke, and Aniela Calkówna (Univ. Poznań, Poland). Rochim. Chem. 32, 409-11 (1958) (German summary); cf. C.A. 51, 1707i. —  $\text{Cu}^{++}$  are inhibitors in the catalytic action of  $\text{CuO}$  on the  $\text{H}_2\text{O}_2$  decompn. The action of  $\text{Mn}^{++}$  on the catalytic activity of  $\text{MnO}_2$  is similar. The high activity of the ternary catalyst, composed of Fe, Cu, and Mg hydroxides (Fe:Cu:Mg = 1:0.3:0.22) (I), which is the ideal model of respiration enzyme (C.A. 33, 3283'), is increased upon addn. of identical ions. The content of a given component does not play the main role in the activity. These facts indicate that an exchange reaction should take place even between identical atoms leading to active or inactive complex compds.  $\text{WO}_3$  acts on I as a strong inhibitor in the  $\text{HCOOH}$  oxidation, but not in the  $\text{H}_2\text{O}_2$  decompn. On the other hand  $\text{Al}^{+++}$  inhibits the action of I in the  $\text{H}_2\text{O}_2$  decompn. but not in the  $\text{HCOOH}$  oxidation.

A. Kręglewski

10

*[Handwritten signature]*

BETI, Pal, dr., a muszaki tudományok kandidátusa, címzetes egyetemi docens

Up-to-date material testing. Technika 8 no.10:6-7 0 '64.

BETIKOV, I., inzh.; ELINZON, M., kand.tekhn.nauk

Agloporites used in rural construction. Sel'. stroi. [i.e.16] no.3:  
24-25 Mr '62. (MIRA 15:7)  
(Aggregates (Building materials))

TEL'NOV, A.M., inzh.; CHERVOCHKIN, O.A., inzh.; BETIKOV, I.Ye., inzh.

Heat insulating blocks of agloporites. Stroi.mat. 8 no.1:27-28  
Ja '62. (MIRA 15:5)

(Insulating materials)

BETIKOV, I.Ye., inzh.

Study of the kinetics of liquid phase in the production of  
agloporites based on the electric conductivity of clinkering  
charges. Stroi. mat. 9 no.6:34-36 Je '63. (MIRA 17:8)



ARKHIPOV, N.I.; BETIKOV, I.Ye.

Mixer-granulator of clay raw materials for the production of agloporite. Stroi. mat. 11 no. 12:31 D '65. (MIRA 18:12)

1. Glavnyy inzhener laboratorii stroitel'nykh materialov Nauchno-issledovatel'skogo instituta sel'skogo stroitel'stva (for Arkhipov). 2. Direktor Tuchkovskogo eksperimental'nogo predpriyatiya Vsesoyuznogo nauchno-issledovatel'skogo instituta novykh stroitel'nykh materialov Akademii stroitel'stva i arkhitektury SSSR.

*BETIN, B. M.*

PHASE I

TREASURE ISLAND BIBLIOGRAPHICAL REPORT

AID 296 - I

BOOK

Call No.: AF545388

Author: BETIN, B. M.

Full Title: RADIO TRANSMITTING EQUIPMENT

Transliterated Title: Radiopredayushchiye ustroystva

Publishing Data

Originating Agency: None

Publishing House: State Publishing House for Energetics

Date: 1951

No. pp.: 440

No. of copies: 10,000

Editorial Staff

Editor: S. S. Arshinov

Tech. Ed.: None

Editor-in-Chief: None

Appraisers: None

Others: The author acknowledges the cooperation of B. A. Smirenin and S. S. Arshinov who wrote paragraphs 1-3, 7-2, 11-3, 15-4, P-2, the text on thermal compensation, and in addition, developed the problems of energy relationships in connection with amplitude modulation.

Appreciation is also expressed to the following instructors of the Gorkiy Radio Tekhnikum: V. A. Alyavdin, V. A. Min'kov, A. Kh. Khitrin, L. A. Morugin, L. T. Shnudeyko, etc.

Text Data

Coverage: The text deals with the theory and analysis involved in the design and production of low- and medium-power transmitters. The discussion includes a brief treatment of UHF and SHF oscillators with general descrip-

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Radiopere dayushchiye ustroystva

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tion of lighthouse, reflex klystron, and magnetron tube circuits.

The approach is theoretical and analytical, supplemented by diagrams and formulas. The basic aspects are illustrated in detail by many examples. The book is actually a survey and a deeper exposition would have required supplementary theoretical material.

TABLE OF CONTENTS:	Chapter 1	Development of Radio Transmitting Equipment.
	" 2	Basic Theory of High-frequency Power Amplifiers.
	" 3	Energy Relationships in Power Amplifiers.
	" 4 & 5	Circuits and Analysis of Power Amplifiers.
	" 6	Parasities in Amplifiers.
	" 7	Ultra-short Wave Power Amplifiers.
	" 8	Output Transformers.
	" 9	Intermediate-frequency Amplifiers.
	" 10 & 11	Generators (Self-excited, Ultra-short Wave, etc.).
	" 12	Frequency Stabilization.
	" 13, 14 & 15	Amplitude Modulation. (Plate, Grid, etc.).
	" 16	Frequency and Phase Modulation.
	" 17	Radio Telegraphy.
	" 18	Pulse Operation.
	" 19	Problems.

BETIN, Boris Mikhaylovich; KOKUSHKIN, A.A., redaktor; FRIDKIN, A.M.,  
tekhnicheskiiy redaktor

[Radio transmitters; theory and practice] Radioperedaiushchie ustroï-  
stva; teoriia i raschet. Moskva, Gos. energ. izd-vo, 1956. 352 p.  
(Radio-- Transmitters and transmission) (MLFA 10:1)

L 26389-66 EWT(d)

ACC NR: AM5019285

Monograph

UR/

Betin, B.M.

27

B+1

Radio transmitters; theory and design (Radio-peredayushchiye ustrovstva; teoriya i raschet) 3d ed., rev. and enl. Moscow, Izd-vo "Vysshaya shkola," 1965. 334p. illus., biblio., tables. 37,000 copies printed.

TOPIC TAGS: radio communication, radio engineering, radio equipment, radio transmitter.

COVERAGE AND PURPOSE: This is the third edition of a text book approved by the Ministry of Higher and Secondary Specialized Education for use at radio engineering schools. Theoretical and design problems connected with the development and lot production of relatively low-powered radio-transmitting equipment are discussed. Sections describing the circuits and operations of pulse transmitters and modulators, frequency and phase modulation, amplifiers and ultrashortwave generators are extended to include transistorized amplifiers, generators, and circuits and the technical indices of transmitters currently in use. The author thanks N.A. Fetisova, Ye. M. Moskalevskaya, D.B. Malysheva and V. Kulika for their assistance.

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SUB CODE: 17, 09/ SUBM DATE: 15Feb65/ ORIG REF: 030

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SOV/124-58-10-11336

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 92 (USSR)

AUTHORS: Notarov, V.D., Betin, D.I.

TITLE: Methods of Determination of the Permeability Coefficient of Individual Water-bearing Horizons by Means of Evaluation of Total Yield of Wells Operating in the Krivoy Rog Basin (K metodike opredeleniya koeffitsiyenta fil'tratsii ot del'nykh vodonosnykh gorizontov po sum-marnym otkachkam iz skvazhin v usloviyakh Krivorozhskogo basseyna)

PERIODICAL: Byul. nauchno-tekhn. inform. N.-i. gornorudn. in-t, 1957, Nr 3, pp 58-66

ABSTRACT: A presentation of methods for determining the permeability coefficients of individual water-bearing horizons exploited by a common well without provisions for mutual insulation of reservoirs. The authors base their reasoning on the fact that natural aquifer horizons are completely isolated from each other by heavy, impervious layers and that the only hydraulic connection between them is that provided by the wells. The yield of a well is regarded to be equivalent to the algebraic sum of the yields of the separate horizons. In their computations the authors make use of Dupuy's equations. The calculation

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SOV/124-58-10-11336

Methods of Determination of the Permeability Coefficient (cont.)

equations are based upon the following considerations: The first equation emanates from the condition that drilling operations are halted and the resulting steady-state water level is measured after penetration of each water-bearing horizon. Two other equations are set up on the basis of two separate pumping operations with different yield from the horizon being considered. After the hydraulic characteristics of a given horizon have been determined, the drilling operations are continued until the next horizon is reached. Water level measurements and the two separate pumping operations make it possible to obtain three equations from which the hydraulic characteristics of a given water-bearing horizon may be determined. An example is given showing the computation of the permeability coefficient of three separate water-bearing horizons.

V.A. Vasiliyev

Card 2/2

TOKHTUYEV, G.V.; BETIN, D.I.

Qualitative evaluation of jointing for the characterization of  
the stability of rocks. Uzb.geol.zhur,no.3:43-46 '60.

(MIRA 13:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy geologo-razvedochnyy  
institut.

(Joints (Geology))

NATAROV, V.D.; BETIN, D.I.

Method of determining anticipated inflows into mine openings and open pits with a calculation of drainage time under conditions of the Krivoy Rog Basin. Sbor. nauch. trud. NIGRI no.7:60-69 '60. (MIRA 14:12)

(Krivoy Rog Basin--Mine drainage)  
(Water, Underground)

BELEVTSSEV, Ya.N.; BEYGULENKO, I.L.; BETIN, D.I.; BORISENKO, V.G.;  
GUBKINA, N.N.; DZHEDZALOV, A.T.; ZHILKINSKIY, S.I., prof.;  
ZALATA, L.F.; KAZAK, V.M.; MALYUTIN, Ye.I.; MUROMTSEVA, Z.G.;  
NATAROV, V.D., doktor geol.-miner. nauk; PANASENKO, V.N.;  
PITADE, A.A.; RADUTSKAYA, P.D.; SLEKTOR, S.M.; SMIRNOV, D.I.;  
TOKHTUYEV, G.V., kand. geol.-min. nauk; FOMENKO, V.Yu.;  
SLENZAK, O.I., red.izd-va; MATVEYCHUK, A.A., tekhn. red.

[Methodological guide for the geological service for the  
prospecting and mining of Krivoy Rog type deposits] Metodiche-  
skoe rukovodstvo dlia razvedochnoi i rudnichnoi geologicheskoi  
sluzhby mestorozhdenii krivorozhskogo tipa. Pod red. IA.N.  
Belevtseva. Kiev, Izd-vo AN USSR, 1963. 395 p.

(MIRA 16:12)

1. Krivoy Rog. Gornorudnyy institut. 2. Chlen-korrespondent  
AN Ukr.SSR (for Belevtsev).

(Krivoy Rog Basin--Engineering geology)



SHAKHOV, A.I.; BETIN, P.Ya.; AFANAS'YEVSKIY, Ye.K., redaktor; MINYAYEVA, G.A.,  
redaktor.

[Laying out and marking off ships on the mold loft] Razbivka i razmetka  
sudov na plaze. [Leningrad] Gos. ind-vo sudostroit. lit-ry, 1953. 123 p.  
(MLRA 7:6)

(Shipbuilding)

BETIN, P. Ya.

SHAKHOV, Aleksandr Ivanovich; BETIN, Pavel Yakovlevich; DORMIDONTOV, F.K.,  
otvetstvennyy red.; LEVOCHKINA, L.I., tekhn. red.

[Laying out and marking off ships on the mold loft] Razbivka i  
razmetka sudov na plaze. Izd. 2., ispr. 1 dop. Leningrad, Gos.  
soiuznoe izd-vo sudostroit. promyshl., 1958. 152 p. (MIRA 11:7)  
(Naval architecture)

BETIN, S.

Machinery for the northwestern zone. Trakt. i sel'khoz mash. 30  
no. 12:20-24 D '60. (MIRA 13:12)

1. Glavnyy konstruktor Spetsial'nogo konstruktorskogo byuro  
Severo-zapada.

(Russia, Northwestern--Agricultural machinery)

BETIN, S.

Machinery developed by the Northwestern Main Machinery Design  
Bureau. Trakt. i sel'khoz mash. 32 no.10:37-38 0 '62.  
(MIRA 15'9)

1. Glavnyy konstruktor Glavnogo konstruktorskogo byuro  
Severo-Zapada.  
(Fertilizer spreaders) (Harvesting machinery)

IYEVINSH, Ya.K.; BETIN, S.G.; KHAAS, V.M.; TKACHUKOV, V.Ya.,  
nauchn. red.; SHCHEGLOVA, I.B., red.

[Farm mechanization in the countries of the northwestern  
zone of Europe (Finland, Sweden, Denmark, the German  
Democratic Republic)] Mekhanizatsiia sel'skogo khoziaistva  
v stranakh Severo-Zapadnoi zony Evropy (Finliandii -  
Shvetsii - Danii - GDR); obzor. Moskva, 1963. 91 p. (Kom-  
pleksnaia mekhanizatsiia i avtomatizatsiia predpriatii.  
Seriia I-63) (MIRA 17:5)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy in-  
formatsii po avtomatizatsii i mashinostroyeniyu.

BETIN, S.G.

Some problems of development in the design of multipurpose  
agricultural loaders. Trakt. i sel'khoz mash. no.2:18-19 F '65.  
(MIRA 18:4)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro Severo-  
Zapada.

BETIN, V. T., BERKHOVSKIY, B. I., KURMAYEV, F. A., and BELYKH, L. G.

"Moisture Control of a Furnace Charge by the Neutron Method"

paper presented at the All-Union Seminar on the Application of  
Radioactive Isotopes in Measurements and Instrument Building,  
Frunze (Kirgiz SSR), June 1961)

So: Atomnaya Energiya, Vol 11, No 5, Nov 61, pp 468-470

BEVIN, Y.V. ZHADRINSKIY, S.V.; URALOV, N.S.

Observation of marine ice from airplanes. Trudy GOIN no.40:147-155  
'57. (Ice) (MIRA 10:7)



BETIN, V.V.

Ice conditions in the Baltic Sea region and its approaches and perennial variations of these conditions. Trudy GOIN no.41:54-125 '57.  
(MIRA 11:9)

(Baltic Sea--Ice and rivers, lakes, etc.)

3(9)

AUTHORS:

Betin, V. V., Zhadrinskiy, S. V., Uralov, N. S.

SOV/50-59-5-15/22

TITLE:

Method of Observing Inland Ice in the Sea by Instruments  
From an Airplane (Sposob instrumental'nykh avianablyudeniya nad  
materikovymi 'dani v more)

PERIODICAL:

Meteorologiya i gidrologiya, 1959, Nr 5, pp 51-54 (USSR)

ABSTRACT:

In the systematic observation of the ice cover in the Baltic Sea from an airplane, the aerial protractor with a scenographic scale (perspektivnomasshtabnyy) was mainly used (Ref 1). On the basis of this instrument, a method for the survey of ice fields in the sea from an airplane was worked out. The experience of the last 3 years showed that this method guarantees an accuracy sufficient for practical and scientific purposes. It is suggested here to apply this method also to the observation of inland ice in the sea. The aerial protractor has an automatically adjusting perspective network and devices for measuring the vertical and horizontal angles. The network permits measuring the linear elements and the elements of area of the inland ice visible at an angle of 30 to 72° in the perspective. The measuring method is explained here in short. If

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Method of Observing the Inland Ice in the Sea by Instruments From an Airplane

the airplane is drifted, the length of the ice object can be calculated by formula (1). Formula (2) is given. This is the general form of the equation for calculating the length of the ice object. The real flying speed and the drift of the airplane out of the course can be measured at the same time by means of the mentioned network. The procedure is described in short. - Measuring the surface position of ice formations is a little more complicated. The projection of this height on a horizontal plane is measured from the airplane, and then the height is determined by formula (3). The icebergs are usually located in clear weather. The shadow can then be measured, and the height of the iceberg above the water level can be determined by formula (4). The position of the iceberg with respect to the airplane can be determined by formula (5). - Recommendations are given for determining the height of the iceberg if the shape of the iceberg is asymmetric. The accuracy of the surveying methods given here is - as an examination showed - approximately equal to the one attained in determining the position of a ship in the sea by the method of resection to coast stations. The mentioned instrument was also tested in surveying factory chimneys, lighthouses, rocks etc. These tests also

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Method of Observing      Inland Ice in the Sea by Instruments From an Airplane

confirmed the utility of this instrument for measuring heights from an airplane. There are 3 figures, 1 table, and 1 Soviet reference.

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BETIN, V.V.; PREOBRAZHENSKIY, Yu.V.

Variation of ice conditions in the Baltic Sea and the straits  
of Denmark. Trudy GOIN no.37:3-13 '59. (MIRA 13:4)  
(Baltic Sea--Ice) (Oresund--Ice)

BETIN, V.V.; ZHADRINSKIY, S.V. [deceased]; URALOV, N.S.

New methods for aerial observation of marine ice conditions.

Trudy GOIN no.37:205-230 '59. (MIRA 13:4)

(Aeronautics in surveying) (Ice on rivers, lakes, etc.)

BETIN, V.V., starshiy nauchnyy sotrudnik; PREOBRAZHENSKIY, Yu.V., otv.  
red.; DVOSKINA, M.E., red.; YASHOGORODSKAYA, M.M., red.;  
FLAUM, M.Ya., tekhn.red.

[Ice atlas of the Baltic Sea and adjacent areas] Atlas l'dov  
Baltiiskogo moria i prilagaiushchikh raionov. Pod red. IU.V.Pre-  
obrazhenskogo. Leningrad, Gidrometeor.izd-vo. Pt.1. [Baltic Sea,  
The Gulf of Riga, the Straits of Denmark, and the adjacent part of  
the North Sea] Baltiiskoe more, Rizhskii zaliv, Datskie prolivy i  
prilagaiushchaya chast' Severnogo moria. 1960. 7 p., 64 p.

(MIRA 14:3)

1. Moscow. Gosudarstvennyy okeanograficheskiy institut. Lenin-  
gradskoye otdeleniye. 2. Leningradskoye otdeleniye Gosudarstven-  
nogo okeanograficheskogo instituta (for Betin).  
(Baltic Sea region--Sea ice--Maps)

6  
BETIN, V.V.; PREOBRAZHENSKIY, Yu.V.

Investigation of ice on the Baltic Sea during the International  
Geophysical Year. Trudy GOIN no.46:115-119 '59. (MIRA 13:5)  
(Baltic Sea--Ice)



BETIN, V.V.; PREOBRAZHENSKIY, Yu.V.; SOLOV'YEV, V.I.; YASNOGORODSKAYA, M.M., red.; BRAYNINA, M.I., tekhn.red.

[Album of aerial photographs of different forms of ice occurring in the sea] Al'bom aerofotosnimkov ledovykh obrazovani na moriakh. Leningrad, Gidrometeor.izd-vo, 1960. 221 p.

(MIRA 13:6)

1. Moscow. Gosudarstvennyy okeanograficheskiy institut. Leninskoye otdeleniye. 2. Leningradskoye otdeleniye Gosudarstvennogo okeanograficheskogo instituta (LO GOIN) Glavnogo upravleniya gidrometeorologicheskoy sluzhby pri Sovete Ministrov SSSR (for Betin).

(Sea ice--Pictorial works)

(Photographic interpretation)

BETIN, V.V.; PREOBRAZHENSKIY, Yu.V.

Use of radiotelegraphic apparatus in operative transmission of  
the materials of aerial oceanographic and ice observations. Trudy  
GOIN no.55:182-186 '60. (MIRA 14:7)  
(Radiotelegraph) (Oceanographic research)

BETIN, V.V.; PREOBRAZHENSKIY, Yu.V.,

Desintegration of sea ice and its estimation. Trudy GOIN no.55:  
187-207 '60.

(Sea-ice)

(MIRA 14:7)

BETIN, V.V.; SHIROKOV, K.P.

Determining the elements of ice drift in the sea from the  
airplane. Trudy GOIN no.63:64-77 '61. (MIRA 14:8)  
(Sea ice) (Aerial photogrammetry)

BETIN, V.V.; ZAYTSEV, A.P.

Characteristics of freezing of the Baltic Sea in the winter  
of 1959/60. Trudy GOIN no.63:78-89 '61. (MIRA 14:8)  
(Baltic Sea--Sea ice)

BETIN, Vasil'y Vasil'yevich; PREOBRAZHENSKIY, Yuriy Veniaminovich  
[deceased]; NEDOSHIVINA, T.G., red.; VOLKOV, N.V., tekhn.  
red.

[Severity of European winters and ice conditions in the  
Baltic Sea] Surovost' zim v Evrope i ledovitost' Baltiki.  
Leningrad, Gidrometeoroizdat, 1962. 108 p. (MIRA 15:7)  
(Europe--Winter) (Baltic Sea--Sea ice)

ACCESSION NR: AT4038922

S/2634/64/000/071/0125/0140

AUTHOR: Betin, V. V.; Losev, S. M.; Shirokov, K. P.

TITLE: Aerial photography of marine ice floes

SOURCE: Moscow. Gosudarstvennyy okeanograficheskiy institut. Trudy\*, no. 71, 1964. Issledovaniye izmenchivosti ledovitosti nekotorykh morey (Investigating the variability in ice formation on some seas), 125-140

TOPIC TAGS: oceanography, drift ice, ice floe, aerial photography, ice flow photography, marine ice

ABSTRACT: This extensive article is in four parts. In the first section, the authors discuss aerial photographic field work in general terms. Cartographic and reconnaissance factors are considered which must precede the actual photographic operations. Recommendations are given regarding the linear value of the base for various frame formats, scale and camera types. Tack length is also considered for situations involving photography along the shore, along the fast ice line (shore ice) and over open water. It is pointed out that an extremely desirable condition when selecting the routing is the possibility of a two-way connection or orientation of that routing with certain fixed features (islands,

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ACCESSION NR: AT4038922

capas, promontories, fast ice zone, etc.). The time intervals between subsequent sorties are to be so scheduled that not less than 50% of the floating ice area recorded on the pictures of a preceding tack is represented on the next succeeding aerial photography routing. The use of the smallest possible scale is recommended and the reasons why, in aerial photographic work involving the study of ice drift, this scale should always be minimal for given resolution of the equipment, corresponding meteorological conditions and dimensions of the ice floes to be photographed are explained. The importance of parallel observations over surface currents in the gaps between floes is noted. Recommendations are given with respect to the depth of immersion of float buffers and the point is made that this depth should correspond to the thickness of the ice. The authors note that it is advisable to carry out aerial photography in parallel with two cameras capable of simultaneously photographing at two scales: 1 : 20,000 - 1 : 40,000. for the ice drift proper and 1 : 5,000 for the disposition of the floats. The second part of the article analyzes the results of the aerial photography performed in the Gulf of Finland in 1961. This material was broken down into three groups. The first group contains materials obtained in photo passes made along the coast or the edge of the fast ice (coast ice); the second group contains material from cantilever extensions; the third group contains the material from

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ACCESSION NR: AT4038922

closed passes, resting at fixed reference points on both ends. The data processing of the information from all three groups is discussed in this section. The authors point out that the determination of the elements of ice drift on the basis of the materials of each of these groups is possible through the use of graphic photo-triangulation. However, for the first group, under certain conditions, the problem may be simplified somewhat with no appreciable loss of accuracy in the results obtained. For this purpose, it is sufficient to limit oneself to the use of conventional photo.layouts (aerial mosaics, in this case), mounted from contact prints, without recourse to the plotting of photo-triangulation nets. Since the problem of the processing of aerial photography material on drift ice is of definite interest, the authors have considered it necessary to consider the peculiarities of this problem in detail as they apply to each of the three cases. The third section of the paper deals with method accuracy. The ice drifting elements, obtained as a result of the processing of the material for each of the three groups above, naturally contain errors. Since the character of these errors and their magnitude will be somewhat different in each separate case, the degree of accuracy in the results derived will also be different. For all three processes, the accuracy in the determination of the speed and direction of the drift will increase as the route length decreases, as the duration of the time interval between sorties increases and as the drift speeds

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ACCESSION NR: AT4038922

increase. Since the speed of the drift is independent of human intervention, in order to obtain drift material of given accuracy only the first two elements can be varied. It is not always possible to reduce the route length, since this is limited by the region under study. Consequently, all other conditions being equal, the accuracy of the derived information can be enhanced solely by increasing the time interval between contiguous tacks. The problem is analyzed mathematically in the article. In the example considered by the authors (exposure scale 1 : 20,000; base number 23 - 25; time between sorties about 1 hour; drift on the order of 0.5 km/hour) the errors in the center section of the photo passes were not more than 15% for the speed of drift, and not more than 10% for the direction. The fourth and final section of the article gives a detailed description of the use of repetitive aerial photography for the study of ice drifting in Kursh Bay (Kurshkiy zaliv) and in the adjacent area of the Baltic Sea. The ice was photographed over the same routes which were so laid out that it was possible, at least along the edge of the picture, to obtain an image of the coastal strip of dry land. In this way, a point of reference on the coast line was provided for all pictures and the position of the ice flows was strictly coordinated on the basis of orientation markers on the shore. This section is supplemented with charts and maps. The data on ice drifting obtained in this

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ACCESSION NR: AT4038922

operation make it possible to recommend the method for wide use in the investigation of ice drifting both in open as well as in coastal waters. The general conclusions reached by the authors in this article can be summarized as follows:

1. The use of the method of repeated aerial photographic tacks permits the establishment of the laws of ice drifting as a function of wind conditions, while at the same time embracing all the varieties of ice encountered at sea.
2. Experience in the use of aerial photography for the study of ice drift conditions makes it possible to recommend this method for practical utilization.
3. Aerial photography operations can be carried out over routes enclosed between two objects on dry land, by cantilever extension routes or by routes running along the coast line or edge of the fast ice (coast ice).
4. The smallest scales permissible under the given weather conditions, flow dimensions and resolving power of the photographic equipment in use should be employed.
5. Before photographing an ice drift from the air, it is expedient to drop special floats containing a charge of fluorescent material in the intervals between the floes. In this connection, the exposure should be made on two scales: on a small scale for the ice drift proper, and on a larger scale for the disposition of the floating markers.
6. Meteorological conditions (cloud formation, visibility, illumination) place the same constraints on the use of aerial photography for the study of ice drifting as on its other applications. Problems relating to the accuracy of the determin-

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ACCESSION NR: AT4038922

ation of ice drift elements at sea by the method of vertical aerial photography require further development and refinement. Orig. art. has: 5 figures and 12 formulas.

ASSOCIATION: Gosudarstvennyy okeanograficheskiy institut, Moscow (State Institute of Oceanography)

SUBMITTED: 00

DATE ACQ: 04Jun64

ENCL: 00

SUB CODE: ES

NO REF SOV: 005

OTHER: 000

Cord 6/6

BETIN, V.V.

Periodical fluctuations in the ice conditions of the Baltic  
Sea. Trudy GOIN no.71:120-124 '64.

(MIRA 17:10)

BETIN, V.V.; LOSEV, S.M.; SHIROKOV, K.P.

Aerial photographic surveying of the drift of ice in the sea.  
Trudy GOIN no.71:125-140 '64. (MIRA 17:10)

SEVEROVA, Ye.Ya., kand. med. nauk; BETIN, Ye.M.

Dermatitis caused by aminazine in medical personnel. Trudy 1-go  
MMI 28:79-86 '64. (MIRA 17:11)

1. Kafedra obshchey terapii i professional'nykh zabolevaniy (zav.  
- deystvitel'nyy chlen AMN SSSR prof. Ye.M. Tareyev) sanitarno-  
gigiyenicheskogo fakul'teta 1-go Moskovskogo ordena Lenina medi-  
tsinskogo instituta imeni Sechenova.

BETIN, Yu.P., ref.

Remote control equipment for metallographic investigation of radioactive substances. Review of foreign literature by Yu.P. Betin. Zav. lav. 21 no. 8:1011 '55. (MIRA 8:11)  
(Radioactive substances) (Metallography)



*BETIN, YU. P.*

Category: USSR/Fitting Out of Laboratories. Instruments, Their Theory, H. Construction and Use.

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 31160

Author : Betin Yu. P.

Inst : not given

Title : Increasing the Stability of Radiation Recording by a Scintillation Counter.

Orig Pub: Pribery i tekhn. eksperimenta, 1956, No 1, 43-47

Abstract: A device is proposed which compensates, automatically, the change in amplification factor of a photomultiplier (PEM) by changing subsequent amplification of impulses. The equipment consists of a scintillation counter, cathode follower, first amplifier with controlled amplification factor, a second (linear) amplifier, amplitude discriminator, scaler and automatic regulator. Impulses of linear amplifier output reach the automatic regulator (which operates according to the principle of a peak-reading voltmeter) which controls both the amplification factor of the first amplifier and the actuation threshold of the discriminator.

Card : 1/2

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SOV/120-58-6-12/32

AUTHOR: Betin, Yu. P.

TITLE: An Equipment for Determining the Correlation Function During the Recording of the Disintegrations (Ustroystvo dlya opredeleniya funktsii korrelyatsii pri registratsii aktov raspada)

PERIODICAL: Priory i tekhnika eksperimenta, 1958, Nr 6, pp 68-71 (USSR)

ABSTRACT: The equipment described is capable of evaluating a correlation function in the form :

$\Phi_{ik} = \overline{n_i n_k} - \bar{n}_i \bar{n}_k$ . For this purpose the time is divided into  $\nu$  intervals. During each interval,  $n_i$  disintegrations of the  $i^{\text{th}}$  type are recorded; simultaneously,  $n_k$  disintegrations of the  $k^{\text{th}}$  type are registered and the product of  $n_i n_k$  is evaluated. The equipment employs two counting devices, type PS-10 000 and an instrument type PS-64, which permit the direct determination of the number of intervals  $\nu$  and the total number of the disintegrations of the  $i^{\text{th}}$  type during  $\nu$  intervals; similarly, the total number of the disintegrations of the  $k^{\text{th}}$  type and of the product

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SOV/120-58-6-12/32

An Equipment for Determining the Correlation Function During the Recording of the Disintegrations

$n_i n_k$  over  $\nu$  intervals is determined. From these measurements it is possible to calculate  $\bar{n}_i$ ,  $\bar{n}_k$  and  $\overline{n_i n_k}$ . The intervals  $\nu$  can be changed from 0.08 to 20 sec. The rise time of one of the computing channels is 5  $\mu$ s, while that of the second channel (which evaluates the product  $n_i n_k$ ) is 120  $\mu$ s. A detailed circuit diagram of the equipment is given and its operation is described in some detail. The paper contains 2 figures and 1 Soviet reference.

ASSOCIATION: Fizicheskii institut AN SSSR (Physics Institute of the Academy of Sciences, USSR)

SUBMITTED: December 16, 1957.

Card 2/2

BETIN, Yu. P.

~~LATYPOV, G. D.~~

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PHASE I BOOK EXPLOITATION SOV/5410

Tashkentskaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Tashkent, 1959.

Trudy (Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy) v. 2. Tashkent, Izd-vo AN UzSSR, 1960. 449 p. Errata slip inserted. 1,500 copies printed.

Sponsoring Agency: Akademiya nauk Uzbekskoy SSR.

Responsible Ed.: S. V. Starodubtsev, Academician, Academy of Sciences Uzbek SSR. Editorial Board: A. A. Abdullayev, Candidate of Physics and Mathematics; D. M. Abdurazulov, Doctor of Medical Sciences; U. A. Arifov, Academician, Academy of Sciences Uzbek SSR; A. A. Borodulina, Candidate of Biological Sciences; V. M. Ivashev; G. S. Ikramova; A. Ye. Kiv; Ye. N. Izbakov, Candidate of Physics and Mathematics; A. I. Nikolayev, Candidate of Medical Sciences; D. Nishanov, Candidate of Chemical Sciences; A. S. Sadykov, Corresponding Member, Academy of Sciences USSR, Academician, Academy of Sciences Uzbek SSR; Yu. N. Talanin,

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Transactions of the Tashkent (Cont.)

SOV/5410

Candidate of Physics and Mathematics; Ya. Kh. Turakulov, Doctor of Biological Sciences. Ed.: R. I. Khosidov; Tech. Ed.: A. G. Babalshanova.

PURPOSE : The publication is intended for scientific workers and specialists employed in enterprises where radioactive isotopes and nuclear radiation are used for research in chemical, geological, and technological fields.

COVERAGE: This collection of 133 articles represents the second volume of the Transactions of the Tashkent Conference on the Peaceful Uses of Atomic Energy. The individual articles deal with a wide range of problems in the field of nuclear radiation, including: production and chemical analysis of radioactive isotopes; investigation of the kinetics of chemical reactions by means of isotopes; application of spectral analysis for the manufacturing of radioactive preparations; radioactive methods for determining the content of elements in the rocks; and an analysis of methods for obtaining pure substances. Certain

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Transactions of the Tashkent (Cont.)

SOV/5410

instruments used, such as automatic regulators, flowmeters, level gauges, and high-sensitivity gamma-relays, are described. No personalities are mentioned. References follow individual articles.

TABLE OF CONTENTS:

RADIOACTIVE ISOTOPES AND NUCLEAR RADIATION  
IN ENGINEERING AND GEOLOGY

Lobanov, Ye. M. [Institut yadernoy fiziki UzSSR - Institute of Nuclear Physics AS UzSSR]. Application of Radioactive Isotopes and Nuclear Radiation in Uzbekistan

7

Taksar, I. M., and V. A. Yanushkovskiy [Institut fiziki AN Latv SSR - Institute of Physics AS Latvian SSR]. Problems of the Typification of Automatic-Control Apparatus Based on the Use of Radioactive Isotopes

9

Card 3/20

- 12
- Transactions of the Tashkent (Cont.) SOV/5410
  - Borukhov, M. Yu., and A. T. Lebedev [Institute of Nuclear Physics AS UzSSR]. A Unified Radioactive Isodronic Regulator (URIR) 29
  - Borukhov, M. Yu., and B. K. Mal'tsev [Institute of Nuclear Physics AS UzSSR]. Experimental Application of High-Sensitivity Gamma-Relay 32
  - Betin, Yu. P., B. I. Verkhovskiy, N. G. Zolevinskaya, and V. V. Yakushin [Fizicheskiy institut Akademii nauk USSR - Physics Institute AS USSR]. Methods for Increasing the Accuracy of Measurements of Radioactive Radiation Flux 36
  - Snisarenko, A., Z. Tarasova, Ye. Nepomnyashchiy, and V. Novopol'skiy [Nauchno-issledovatel'skiy institut shinnoy promyshlennosti-Scientific Research Institute of the Tire Industry]. Determination of the Wear of Car Tires by Means of Isotopes TL<sup>204</sup> 43
  - Arkhangel'skiy, A. A., and G. D. Latyshev [Institute of Nuclear Card 5/20

S/120/60/000/006/005/045  
EO32/E514


21.5300 (2816, 1033, 1138)

AUTHORS: ~~Botin, Yu. P.~~, Verkhovskiy, B. I., Zelevinskaya, N.G.  
and Yakushin, V. V.

TITLE: A Method for Increasing the Accuracy of Measurement of  
the Intensity of Radioactive Emission

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No.6, pp.23-27

TEXT: The principle of the method is as follows. The radiation detector is irradiated both by the radiation under investigation (intensity  $n_n$ ) and the radiation from a standard source (intensity  $n_s$ ). The total electrical signal produced in the detector under the action of the two radiations is fed into a common electronic device at the output of which two signals are separated out. The magnitude of one of them ( $U_1$ ) is proportional to the sum of the two intensities and the magnitude of the second ( $U_2$ ) is proportional to the standard intensity only. The signal  $U_1$  is used to determine the intensity of the radiation under investigation, whilst the signal  $U_2$  is used in the automatic control of the readings and their correction. The automatic correction of the readings is carried out by measuring the ratio  $U_1/U_2$ . In order to be able to separate out the signals  $U_1$  and  $U_2$  at the Card 1/4





S/120/60/000/006/005/045  
EO32/E514


21.5300 (2816,1033,1138)

AUTHORS: Betin, Yu.P., Verkhovskiy, B. I., Zelevinskaya, N.G.  
and Yakushin, V. V.

TITLE: A Method for Increasing the Accuracy of Measurement of  
the Intensity of Radioactive Emission

PERIODICAL: Pribery i tekhnika eksperimenta, 1960, No.6, pp.23-27

TEXT: The principle of the method is as follows. The radiation detector is irradiated both by the radiation under investigation (intensity  $n_n$ ) and the radiation from a standard source (intensity  $n_k$ ). The total electrical signal produced in the detector under the action of the two radiations is fed into a common electronic device at the output of which two signals are separated out. The magnitude of one of them ( $U_1$ ) is proportional to the sum of the two intensities and the magnitude of the second ( $U_2$ ) is proportional to the standard intensity only. The signal  $U_1$  is used to determine the intensity of the radiation under investigation, whilst the signal  $U_2$  is used in the automatic control of the readings and their correction. The automatic correction of the readings is carried out by measuring the ratio  $U_1/U_2$ . In order to be able to separate out the signals  $U_1$  and  $U_2$  at the Card 1/4



86731

S/120/60/000/006/005/045

E032/E514

# A Method for Increasing the Accuracy of Measurement of the Intensity of Radioactive Emission

output of the device, the magnitude of the control beam of radiation is periodically varied. The block diagram of the instrument is shown in Fig.1. The detector 1 is irradiated from the left by the radiation under investigation and from below by the control beam due to the additional source  $S_k$ . The control beam is modulated with a frequency  $\omega_0$  using a rotating absorber as shown in Fig.1. If the intensity of the control beam follows the law  $n_k(t) = n_k(1 + \sin \omega_0 t)$ , then the signal at the anode of the photo-multiplier<sup>or</sup> across the load resistance of the ionization chamber, is of the form  $U = U_n + U_k(1 + \sin \omega_0 t)$ . The constant component  $U_n + U_k$  is thus proportional to the sum of the two intensities, while the amplitude of the variable component  $U_k$  is proportional to the intensity of the control beam. The total signal  $U$  is fed into a dynamic capacitor 2 in which it is transformed into an alternating signal with a frequency  $\omega_1 \gg \omega_0$  and is then amplified by the main amplifier 3. The amplifier is followed by a linear detector 4 which produces at its output the constant voltage

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S/120/60/000/006/005/045  
E032/E514

**A Method for Increasing the Accuracy of Measurement of the Intensity of Radioactive Emission**

$U_1 = (U_{\mu} + U_k) k k_1'$ , where  $k$  is the product of the voltage transformation coefficient of the dynamic capacitor  $\alpha$  and the amplification coefficient of the amplifier 1, and  $k_1'$  is a coefficient depending on the parameters of the detector. The component of the signal having a frequency  $\omega_0$  leaves the detector 4 into the amplifier 5 which is followed by a further detector 6; the latter isolates the constant voltage  $U_2 = U_k k k_1'' k_2$ , where  $k_H$  is the amplification coefficient of the amplifier 5 and  $k_1''$  and  $k_2$  depend on the parameters of the detectors 4 and 6. The voltages  $U_1$  and  $U_2$  are fed into the electronic potentiometer 7, which is connected in such a way that its amplifier sees the difference between  $U_1$  and a fraction of  $U_2$ , which is applied to the rheochord of the potentiometer. The potentiometer is so arranged that its indications satisfy the condition

$$U_1/U_2 = r/R = p \quad (1)$$

where  $R$  is the resistance of the rheochord and  $r$  is a fraction  
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S/120/60/000/006/005/045  
E032/E514

A Method for Increasing the Accuracy of Measurement of the Intensity of Radioactive Emission

of this resistance which feeds the amplifier of the potentiometer. The ratio  $r/R$  is shown directly by the potentiometer. It is shown that changes in the parameters of the detector of the radiation, the dynamic capacitor and the main amplifier have no effect on the measurements. Details are given of the basic circuits involved and some experimental tests performed with the apparatus. There are 4 figures and 2 Soviet references.

ASSOCIATION: Fizicheskiy institut AN SSSR (Physics Institute AS USSR)

SUBMITTED: September 26, 1959

Card 4/4

S/903/62/000/000/014/044  
B102/B234

AUTHORS: Benetskiy, B. A., Betin, Yu. P., Bukarev, V. A., Frank, I. M.

TITLE:  $(n, \gamma)$ -correlation in inelastic scattering of 14-Mev neutrons from  $C^{12}$  nuclei

SOURCE: Yadernyye reaktsii pri malykh i srednikh energiakh; trudy Vtoroy Vsesoyuznoy konferentsii, iyul' 1960.g. Ed. by A. S. Davydov and others. Moscow, Izd-vo AN SSSR, 1962, 178-179

TEXT: 14-Mev neutrons from a  $T^3(d, n)He^4$  source were scattered from a toroidal carbon scatterer; the  $\gamma$ -rays were recorded by a NaI(Tl) scintillation detector with  $\Phi Y-29$  (FEU-29) photomultiplier, the neutrons by a stack of plates of an organic scintillator separated by plexiglas and connected with an  $\Phi Y-24$  (FEU-24) multiplier. Also the recoil protons with  $7 \text{ Mev} \leq E_p \leq 14 \text{ Mev}$  were recorded. The pulse-height resolution of the  $\gamma$ -detector was 10% for  $Tn^{65}$  1.12-Mev quanta; the coincidence circuit had a time resolution of  $2 \cdot 10^{-7}$  sec. The  $\gamma$ -spectrum was analyzed with the help of a pulse-height analyzer. The angular distribution of the 4.4-Mev quanta emitted on the transition of the  $C^{12}$  nucleus from the first excited to the

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(n, $\gamma$ )-correlation in inelastic...

S/903/62/000/000/014/044  
B102/B234

ground state ( $2^+ \rightarrow 0^+$ ) could be described by  $f(\psi) = A + \sin^2 2(\psi - \psi_0)$  (cf. Ann. Phys., 2, 471, 1957) with  $A = (0.27 \pm 0.14)$  and  $\psi_0 = (80 \pm 13)$ . The anisotropic part of the  $f(\psi)$  function has the same character, independent whether the angle of emission of inelastically scattered neutrons is fixed or not.

ASSOCIATION: Fizicheskii institut im. P. N. Lebedeva AN SSSR (Physics  
Institute imeni P. N. Lebedev AS USSR)

Card 2/2

BENETSKIY, B.A.; BETIN, Yu.P.; GONZATKO, Ya.

Inelastic scattering of 14 Mev. neutrons on  $Mg^{24}$ . Zhur. eksp. i  
teor. fiz. 45 no.4:927-931 0 '63. (MIRA 16:11)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

BARONIN, V.N.; PETIN, Yu.P.; VERKHOVSKIY, B.I.; IVANOV, A.I.; PEREL'MAN, S.M.;  
PRAGER, I.A.; KHARLAKOV, V.A.; SHELCOV, L.S.

Crystalless X-ray spectrometer with stabilization of the position  
of the amplitude of the spectrum of a proportional counter. Zav.  
lab. 30 no.4:498-500 '64. (MIRA 17:4)

1. Konstruktorskoye byuro "TSvetmetavtomatika".



L 61471-65 EWT(m) Feb DIAAP DM

ACCESSION NR: AP5020191

UR/0089/65/018/005/0516/0518

AUTHOR: Betin, Yu. P.

TITLE: Spectrum of bremsstrahlung and characteristical radiation emitted by zirconium-tritium source <sup>19</sup> <sub>28</sub>  
B

SOURCE: Atomnaya energiya, v. 18, no. 5, 1965, 516-518

TOPIC TAGS: pulse counter, x ray apparatus, radiation spectrum, bremsstrahlung, radioactive source, zirconium, tritium, x ray emission, electromagnetism

ABSTRACT: The spectral composition of a zirconium-tritium source radiation was measured using a sealed proportional soft x-ray counter with a 20  $\mu$  Terylene side window and 1.5 mm wide and 20 mm long front window opening. The counter was filled with an argon and isopentane mixture under 600 mm Hg pressure. The pulse spectra of the counter were recorded by a 100-channel analyzer. The amplitude spectrum of proportional counter pulses measured with thick Zr-T source on a tungsten layer showed in the secondary radiation spectrum a continuous line corresponding to bremsstrahlung with maximum intensity at 6 kev and a clear line characteristic of

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L 61471-65

ACCESSION NR: AP5020191

L emission of zirconium at energy near 2.0 kev. The obtained data on electromagnetic emission from Zr-T source showed they are capable of exciting K x-ray emission from light elements starting with Al ( $E_K = 1.5$  kev) to germanium ( $E_K = 9.9$  kev) and heavy elements starting with niobium ( $E_L = 2.3$  kev) to tungsten ( $E_L = 9$  kev). Orig. art. has: 1 graph.

ASSOCIATION: none

SUBMITTED: 20May64

ENCL: 00

SUB CODE: NP, OP

NR REF SOV: 001

OTHER: 002

NA

Card

2/2

BETIN, Yu.P.; BURSUKOVA, M.I.; VERKHOVSKIY, B.I.; SHELKOV, L.S.

Use of a zirconium-tritium source for nondispersion X-ray  
spectrum analysis. Atom. energ. 19 no.3:297-298 S '65.  
(MIRA 18:9)

BETIN, Yu.P.; BURSUKOVA, M.I.; SHELKOV, L.S.

Dispersionless X-ray spectral analysis of a mixture of elements  
with near-atomic numbers. Zav. lab. 31 no. 12:1454-1458 '65  
(MIRA 19:1)

1. Konstruktorskoye byuro "TSvetmetavtomatika".

L 17713-66 EWA(h)/EWT(1)

ACC NR: AP6005293

SOURCE CODE: UR/0413/66/000/001/0035/0035

INVENTOR: Betin, Yu. P.

ORG: none

TITLE: Single-channel pulse-height analyzer, Class 21, No. 177460 [announced by the Tsvetmetavtomatika Design Bureau (Konstruktorskoye byuro "Tsvetmetavtomatika")] <sup>25</sup> <sup>28</sup> <sup>B</sup>

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 35

TOPIC TAGS: pulse height analyzer

ABSTRACT: An Author Certificate has been issued for a single-channel pulse-height analyzer. The analyzer contains two discriminators, two pulse shapers, a pulse sampling circuit for a given amplitude range (that also converts the mean pulse counting rate in the analyzer channel to a voltage proportional to the counting rate), a d-c amplifier, and a recorder. To simplify the structure, maintain accuracy, and increase reliability, the sampling circuit is designed in the form of a counting-rate difference meter whose inputs are connected to the shapers and whose output is connected to a d-c amplifier with negative feedback. Orig. art. has: 1 figure. [KM]

SUB CODE: 09/ SUBM DATE: 15Jun64/ ATD PRESS: 4209

Cord 1/1 nst

UDC: 539.1.075

L 25572-66 EWT(m)/EWP(t)/EWA(h) DIAAP JD

ACC NR: AM6013004

Monograph

UR/

Shumilovskiy, Nikolay Nikolayevich; Betin, Yuriy Pavlovich;  
Verkhovskiy, Boris Isaakovich; Kalmakov, Andrey Alekseyevich;  
Mel'ttser, Lel' Vladimirovich; Ovcharenko, YEvgeniy YAKovlevich

Radioisotope and X-ray spectral methods (Radioizotopnyye i rent-  
 genospektral'nyye metody) Moscow, Izd-vo "Energiya", 1965.  
 190 p. illus., biblio. 4500 copies printed. Series note: Fiziche-  
 skiye i fizikokhimicheskiye metody kontrolya sostava i svoystv  
 veshchestva

TOPIC TAGS: x-ray analysis, x-ray spectroscopy, x-ray technique,  
 messbauer effect, radiation detection, neutron source

PURPOSE AND COVERAGE: The book is intended for people interested in  
 radioisotopes and x-ray spectroscopy. It may also be useful for  
 students specializing in spectroscopy and radioisotopes at technical  
 schools of higher education. The first part of the book deals with  
 the principles of operation, calculation methods, and design of  
 radioisotope instruments, based on use of absorption and scattering  
 effects of beta and gamma radiation, excitation of secondary radi-  
 ation, and the use of neutron sources. The second part is devoted  
 to methods of x-ray spectroscopy. Physical fundamentals of these  
 methods are reviewed, ways for reducing measurement errors given,

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and examples of the industrial use of x-ray spectral analyzers discussed.

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